



4E27/8001

4E27

**TRANSMITTING BEAM POWER AMPLIFIER**GENERAL DATA**Electrical:**

Filament, Thoriated Tungsten:

Voltage . . . . . 5.0 . . . . . a-c or d-c volts  
 Current . . . . . 7.5 . . . . . amp.

Transconductance for plate

current of 75 ma. . . . . 2800 . . . . .  $\mu$ mhos

Direct Interelectrode Capacitances:

Grid to Plate . . . . . 0.06 . . . . .  $\mu$ uf  
 Input . . . . . 12 . . . . .  $\mu$ uf  
 Output . . . . . 6.5 . . . . .  $\mu$ uf

**Physical:**Overall Length . . . . . 5-15/16"  $\pm$  1/4"Seated Length . . . . . 5-5/16"  $\pm$  1/4"

Maximum Diameter . . . . . 2-11/16"

Mounting Position . . . . . Vertical Only: Base up or down

Bulb . . . . . T-21

Base . . . . . Medium Metal Shell Giant 7-Pin, Bayonet

Basing Designation for BOTTOM VIEW . . . . . 7BM

Pin 1 - Filament

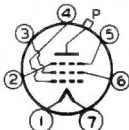
Pin 2 - Grid No.3

Pin 3 - Grid No.2

Pin 4 - Grid No.1

Pin 5 - Grid No.3

Pin 6 - Grid No.2



Pin 7 - Filament

Bulb } - Plate

Ter- } - Plate

minal } - Plate

Base } - {Internal

Shell } - {Shield

A-F POWER AMPLIFIER & MODULATOR - Class A1**Maximum Ratings, Absolute Values:**

D-C PLATE VOLTAGE . . . . . 2000 max. . . . . volts

D-C SCREEN VOLTAGE (Grid No.2). . . . . 750 max. . . . . volts

D-C PLATE CURRENT . . . . . 150 max. . . . . ma.

D-C SCREEN CURRENT . . . . . 40 max. . . . . ma.

PLATE INPUT . . . . . 75 max. . . . . watts

SCREEN INPUT . . . . . 30 max. . . . . watts

PLATE DISSIPATION . . . . . 75 max. . . . . watts

**Typical Operation:**

D-C Plate Voltage . . . . . 500 1000 . . . . . volts

D-C Suppressor Voltage (Grid No.3) $\diamond$  60 0 . . . . . volts

D-C Screen Voltage . . . . . 500 300 . . . . . volts

D-C Grid Voltage (Grid No.1)\* $\#$ . . . . . -47 -27 . . . . . volts

Peak A-F Grid Voltage . . . . . 47 27 . . . . . volts

D-C Plate Current . . . . . 150 75 . . . . . ma.

D-C Screen Current . . . . . 10 5 . . . . . ma.

Load Resistance . . . . . 2600 12000 . . . . . ohms

Power Output . . . . . 30 34 approx. watts

\* $\#$ : See next page.  $\diamond$ : See end of tabulation.  $\leftarrow$  Indicates a change.

MAR. 30, 1945

RCA VICTOR DIVISION

DATA 1

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY



# TRANSMITTING BEAM POWER AMPLIFIER

(continued from preceding page)

## SUPPRESSOR-MODULATED R-F POWER AMPLIFIER - Class C Telephony

Carrier conditions per tube for use with a max. modulation factor of 1.0

### Maximum Ratings, Absolute Values:

D-C PLATE VOLTAGE . . . . .	2000 max. . . volts
D-C SUPPRESSOR VOLTAGE (Grid No.3) . . . . .	-500 max. . . volts
→ D-C SCREEN VOLTAGE (Grid No.2) . . . . .	600 max. . . volts
→ D-C GRID VOLTAGE (Grid No.1) . . . . .	-500 max. . . volts
→ D-C PLATE CURRENT . . . . .	100 max. . . ma.
→ D-C GRID CURRENT . . . . .	25 max. . . ma.
→ PLATE INPUT . . . . .	110 max. . . watts
→ SCREEN INPUT . . . . .	27 max. . . watts
→ PLATE DISSIPATION . . . . .	75 max. . . watts

### Typical Operation:

D-C Plate Voltage . . . . .	1500	2000	. . . volts
D-C Suppressor Voltage <sup>o</sup> . . . . .	-210	-300	. . . volts
D-C Screen Voltage** . . . . .	{ 500	600	. . . volts
	{ 22000	30000	. . . ohms
D-C Grid Voltage . . . . .	-130	-130	. . . volts
Peak A-F Suppressor Voltage . . . . .	210	300	. . . volts
Peak R-F Grid Voltage . . . . .	195	150	. . . volts
D-C Plate Current . . . . .	70	55	. . . ma.
D-C Screen Current . . . . .	44	45	. . . ma.
D-C Grid Current . . . . .	8	3	approx. ma.
Driving Power <sup>o</sup> . . . . .	1.4	0.4	approx. watts
Power Output . . . . .	33	35	approx. watts

\* For a-c filament supply.

# obtained from fixed supply or by cathode resistor. The d-c resistance in the grid circuit should not exceed 50000 ohms with fixed bias, or 500000 ohms with cathode bias.

\*\*obtained preferably from plate-voltage supply through series resistor of value shown.

<sup>o</sup> At crest of a-f cycle with modulation factor of 1.0.

## PLATE-MODULATED R-F POWER AMPLIFIER - Class C Telephony

Carrier conditions per tube for use with a max. modulation factor of 1.0

### Maximum Ratings, Absolute Values:

→ D-C PLATE VOLTAGE . . . . .	3000 max. . . volts
→ D-C SCREEN VOLTAGE (Grid No.2) . . . . .	600 max. . . volts
→ D-C GRID VOLTAGE (Grid No.1) . . . . .	-500 max. . . volts
→ D-C PLATE CURRENT . . . . .	135 max. . . ma.
→ D-C SCREEN CURRENT . . . . .	30 max. . . ma.
→ D-C GRID CURRENT . . . . .	25 max. . . ma.
→ PLATE INPUT . . . . .	250 max. . . watts
→ SCREEN INPUT . . . . .	18 max. . . watts
→ PLATE DISSIPATION . . . . .	65 max. . . watts

← Indicates a change.



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**TRANSMITTING BEAM POWER AMPLIFIER**

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**Typical Operation:**

D-C Plate Voltage. . . . .	1500	2500	. . . volts
D-C Suppressor Voltage(Grid No.3) <sup>◇</sup>	60	60	. . . volts
D-C Screen Voltage <sup>##</sup> . . . . .	{ 600	600	. . . volts
	{ 82000	240000	. . . ohms
	{ -200	-200	. . . volts
D-C Grid Voltage***. . . . .	{ 145000	330000	. . . ohms
	{ 110000	250000	. . . ohms
	{ 310	450	. . . ohms
Peak R-F Grid Voltage. . . . .	255	220	. . . volts
D-C Plate Current. . . . .	135	100	. . . ma.
D-C Screen Current . . . . .	11	8	. . . ma.
D-C Grid Current . . . . .	1.4	0.6	approx. ma.
Driving Power. . . . .	0.4	0.1	approx. watt
Power Output . . . . .	145	200	approx. watts

<sup>##</sup> obtained preferably from modulated fixed supply. May also be obtained from modulated plate-voltage supply through series resistor of values shown.

<sup>\*\*\*</sup> obtained from fixed supply, grid resistor (145000,330000), or combination of cathode resistor (310,450) and grid resistor (110000,250000).

**R-F POWER AMPLIFIER & OSCILLATOR - Class C Telegraphy**Key-down conditions per tube without modulation<sup>▲</sup>**Maximum Ratings, Absolute Values:**

D-C PLATE VOLTAGE. . . . .	4000 max.	. . . volts
D-C SCREEN VOLTAGE (Grid No.2) . . . . .	750 max.	. . . volts
D-C GRID VOLTAGE (Grid No.1) . . . . .	-500 max.	. . . volts
D-C PLATE CURRENT. . . . .	150 max.	. . . ma.
D-C SCREEN CURRENT . . . . .	30 max.	. . . ma.
D-C GRID CURRENT . . . . .	25 max.	. . . ma.
PLATE INPUT. . . . .	300 max.	. . . watts
SCREEN INPUT . . . . .	25 max.	. . . watts
PLATE DISSIPATION. . . . .	75 max.	. . . watts

**Typical Operation:**

D-C Plate Voltage. . . . .	2000	3000	. . . volts
D-C Suppressor Voltage(Grid No.3) <sup>◇</sup>	0	60	. . . volts
D-C Screen Voltage <sup>Δ</sup> . . . . .	{ 750	750	. . . volts
	{ 70000	280000	. . . ohms
	{ -200	-200	. . . volts
D-C Grid Voltage <sup>□</sup> . . . . .	{ 300000	—	. . . ohms
	{ 1200	1800	. . . ohms
Peak R-F Grid Voltage. . . . .	225	170	. . . volts
D-C Plate Current. . . . .	150	100	. . . ma.
D-C Screen Current . . . . .	18	8	. . . ma.
D-C Grid Current . . . . .	0.7	0	approx. ma.
Driving Power. . . . .	0.2	0	approx. watt
Power Output . . . . .	230	235	approx. watts

◇; ▲; Δ; □: see next page.

← Indicates a change.

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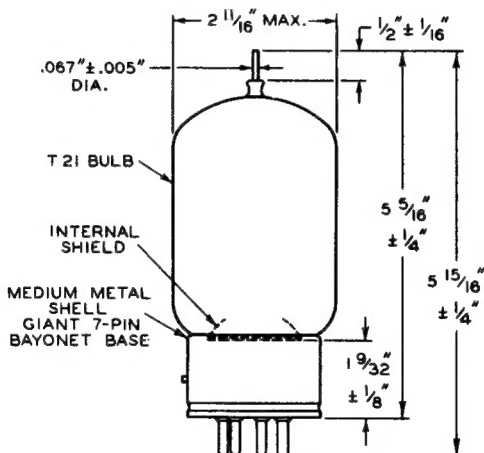
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# TRANSMITTING BEAM POWER AMPLIFIER

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- ◇ Suppressor should be connected to the mid-point of filament circuit operated on a.c., or to the negative end of the filament operated on d.c.
- ▲ Modulation essentially negative may be used if the positive peak of the audio-frequency envelope does not exceed 115% of the carrier conditions.
- △ Obtained from a separate source, or from the plate-voltage supply with a voltage divider, or through a series resistor of the value shown. Series screen resistor should be used only where 4E27 is employed as buffer amplifier and is not keyed. The screen voltage must not exceed 1500 volts under key-up conditions.
- Obtained from fixed supply, grid resistor (300000), or cathode resistor (1200, 1800). When a preceding stage is keyed, sufficient fixed bias must be used to maintain the plate current at a low value when the key is up.

Data on operating frequencies for the 4E27/8001 are given on the sheet TRANS. TUBE RATINGS vs FREQUENCY.



92CM-6260R1

← Indicates a change.

MAR. 30, 1945

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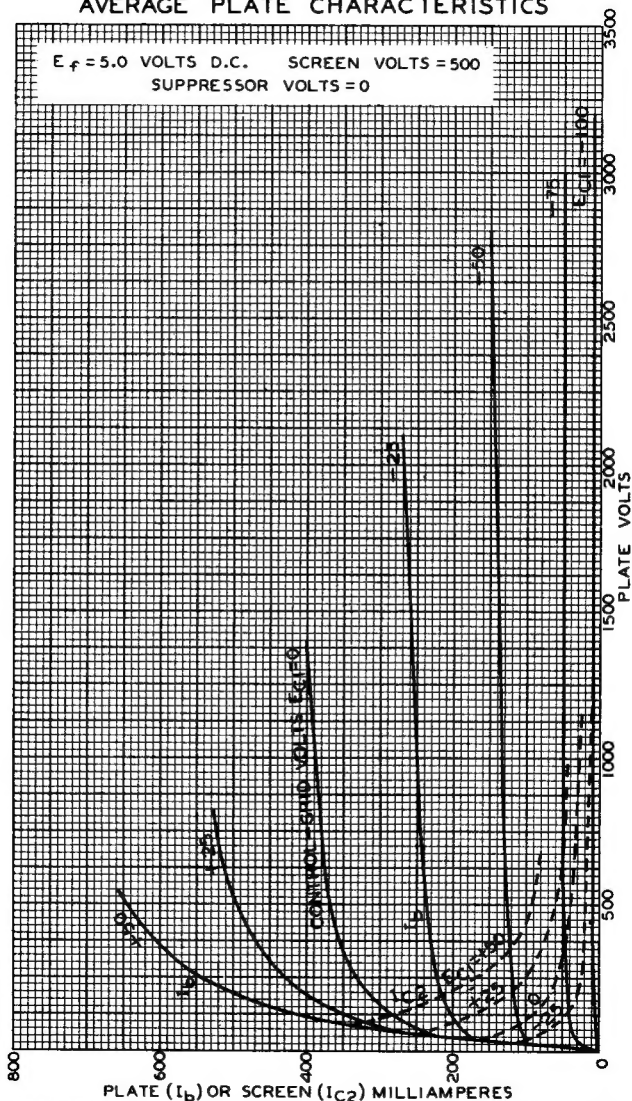
DATA 2



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# AVERAGE PLATE CHARACTERISTICS



MAR. 26, 1945

RCA VICTOR DIVISION

92CM-6261R1

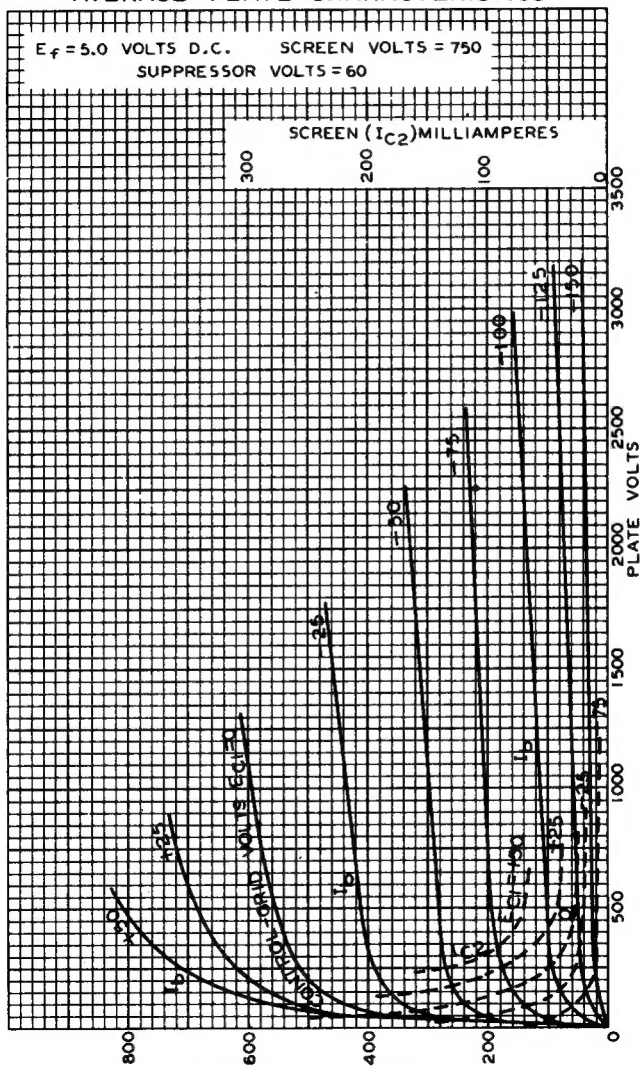
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## AVERAGE PLATE CHARACTERISTICS



JAN. 22, 1945

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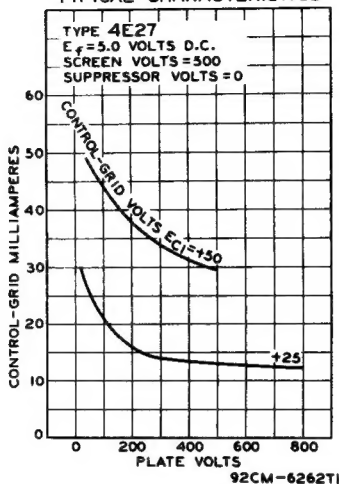


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## TRANSMITTING BEAM POWER AMPLIFIER

TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS

